Dell™ Dimension™ XPS Series Service Manual

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

Abbreviations and Acronyms

For a complete list of abbreviations and acronyms, see the *Dell™ Dimension™ Help* file.

July 2003 Rev. A02

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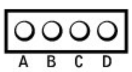
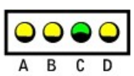
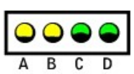
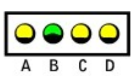
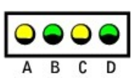
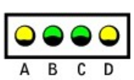
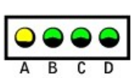
Advanced Troubleshooting

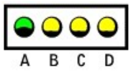
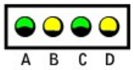
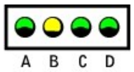
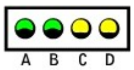
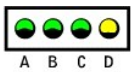
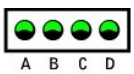
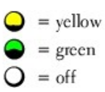
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Diagnostic Lights

To help you troubleshoot a problem, your computer has four lights labeled "A," "B," "C," and "D" on the back panel. The lights can be yellow or green. When the computer starts normally, the lights flash. After the computer starts, all four lights display solid green. If the computer malfunctions, the color and sequence of the lights identify the problem.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Light Pattern	Problem Description	Suggested Resolution
	The computer is in a normal off condition or a possible pre-BIOS failure has occurred.	Verify that the computer is plugged into a working electrical outlet and that you have pressed the power button.
	A possible microprocessor failure has occurred.	Reinstall the microprocessor and restart the computer.
	Memory modules are detected, but a memory failure has occurred.	1. Reinstall all memory modules. 2. Ensure that all the connector tabs are locked. 3. Restart the computer. 4. If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	A possible expansion card failure has occurred.	1. Determine if a conflict exists by removing a card (not a video card) and then restarting the computer. 2. If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer. 3. Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see "Resolving Software and Hardware Incompatibilities" in your *Owner's Manual*). 4. If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	A possible video card failure has occurred.	- If the computer has a video card, remove the card, reinstall it, and then restart the computer. - If the problem still exists, install a video card that you know works and restart the computer. - If the problem persists or the computer has integrated video, see "Contacting Dell" in your *Owner's Manual*.
	A possible floppy or hard drive failure has occurred.	Reseat all power and data cables and restart the computer.
	A possible USB failure has occurred.	Reinstall all USB devices, check cable connections, and then restart the computer.
	No memory modules are detected.	1. Reinstall all memory modules. 2. Ensure that all the connector tabs are locked.

		3. Restart the computer. 4. If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	Memory modules are detected, but a memory configuration or compatibility error exists.	• Ensure that no special memory module/memory connector placement requirements exist. • Verify that the memory modules that you are installing are compatible with your computer. • If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	A possible system board resource and/or hardware failure has occurred.	See "Resolving Software and Hardware Incompatibilities" in your *Owner's Manual*. If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	A possible expansion card failure has occurred.	1. Determine if a conflict exists by removing a card (not a video card) and restarting the computer. 2. If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer. 3. Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see "Resolving Software and Hardware Incompatibilities" in your *Owner's Manual*). 4. If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	Another failure has occurred.	• Ensure that the cables are properly connected to the system board from the hard drive, CD drive, and DVD drive. • If the problem persists, see "Contacting Dell" in your *Owner's Manual*.
	The computer is in a normal operating condition after POST.	None.
		

Beep Codes

Your computer might emit a series of beeps during start-up if the monitor cannot display errors or problems. This series of beeps, called a beep code, identifies a problem. One possible beep code (code 1-3-1) consists of one beep, a burst of three beeps, and then one beep. This beep code tells you that the computer encountered a memory problem.

Reseating the memory modules may fix the beep code errors in the following table. If the problem persists, see "Contacting Dell" in your *Owner's Manual* for instructions on obtaining technical assistance.

Code	**Cause**
1-3-1 through 2-4-4	Memory not being properly identified or used
4-3-1	Memory failure above address 0FFFFh

If you hear one of the following beep codes, see "Contacting Dell" in your *Owner's Manual* for instructions on obtaining technical assistance.

Code	**Cause**
1-1-2	Microprocessor register failure
1-1-3	NVRAM
1-1-4	ROM BIOS checksum failure
1-2-1	Programmable interval timer
1-2-2	DMA initialization failure

1-2-3	DMA page register read/write failure
3-1-1	Slave DMA register failure
3-1-2	Master DMA register failure
3-1-3	Master interrupt mask register failure
3-1-4	Slave interrupt mask register failure
3-2-2	Interrupt vector loading failure
3-2-4	Keyboard Controller Test failure
3-3-1	NVRAM power loss
3-3-2	NVRAM configuration
3-3-4	Video Memory Test failure
3-4-1	Screen initialization failure
3-4-2	Screen retrace failure
3-4-3	Search for video ROM failure
4-2-1	No time tick
4-2-2	Shutdown failure
4-2-3	Gate A20 failure
4-2-4	Unexpected interrupt in protected mode
4-3-3	Timer-chip counter 2 failure
4-3-4	Time-of-day clock stopped
4-4-1	Serial or parallel port test failure
4-4-4	Cache test failure

System Messages

NOTE: If the message you received is not listed in the following table, see the documentation for either the operating system or the program that was running when the message appeared.

Message	Possible Cause	Corrective Action
`8042 Gate-A20 error`	The keyboard controller failed its test.	If you receive this message after you make changes in the system setup program, enter the system setup program and restore the original value(s).
`Address Line Short!`	An error in the address decoding circuitry in the memory has occurred.	Reseat the memory modules.
`C: Drive Error` `C: Drive Failure`	The hard drive is not working or is not configured correctly.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program.
`Cache Memory Bad, Do Not Enable Cache`	The cache memory is not operating.	See "Contacting Dell" in your *Owner's Manual* for instructions on obtaining technical assistance.
`CH-2 Timer Error`	An error is occurring on the timer on the system board.	See "Contacting Dell" in your *Owner's Manual* for instructions on obtaining technical assistance.
`CMOS Battery State Low` `CMOS Checksum Failure` `CMOS System Options Not Set` `CMOS Display Type Mismatch` `CMOS Memory Size Mismatch` `CMOS Time and Date Not Set`	The system configuration information in the system setup program is incorrect or the battery charge may be low.	Enter the system setup program, verify the system configuration, and then restart the computer.
`Diskette Boot Failure`	Drive A or B is present but has failed the BIOS POST.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program. Check the interface cable at both ends.
`DMA Error` `DMA 1 Error` `DMA 2 Error`	Error in the DMA controller on the system board.	The keyboard or system board may need to be replaced.
`FDD Controller Failure`	The BIOS cannot communicate with the floppy drive or hard drive controller.	Ensure that the floppy drive or the hard drive is installed correctly in the computer and defined correctly in the system setup program. Check the interface cable at both ends.

HDD Controller Failure		
INTR1 Error INTR2 Error	An interrupt channel on the system board failed to POST.	The keyboard or system board may need to be replaced.
Invalid Boot Diskette	The operating system cannot be located on drive A or drive C.	Enter the system setup program and confirm that drive A or drive C is properly identified.
Keyboard Error	The BIOS has detected a stuck key.	Ensure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
KB/Interface Error	An error occurred with the keyboard connector.	Ensure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
No ROM Basic	The operating system cannot be located on drive A or drive C.	Enter the system setup program and confirm that drive A or drive C is properly identified.

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Before You Begin

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Getting Started

This section provides procedures for removing and replacing the components, assemblies, and subassemblies in your computer. Unless otherwise noted, each procedure assumes that the following conditions exist:

- You have performed the steps in "Precautionary Measures."
- You have read the safety information in your *Owner's Manual*.
- You have opened the computer cover.

Recommended Tools

The procedures in this document require the following tools:

- Small flat-blade screwdriver
- #1 and #2 Phillips screwdrivers
- 8-inch #2 Phillips screwdriver

Precautionary Measures

Use the following safety guidelines to help protect your computer from potential damage and to ensure your own personal safety.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual*.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions in the *Owner's Manual* that came with the computer.

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a microprocessor by its edges, not by its pins.

NOTICE: When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTICE: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

1. Save any work in progress and exit all open programs.
2. Shut down the computer through the operating system menu.
3. Ensure that the computer and any attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer using the operating system, press and hold the power button for 4 seconds.

NOTICE: To help avoid possible damage to the system board, wait 5 seconds (or wait until the standby light is extinguished) after turning off the computer and unplugging the power cable before you remove a component from the system board or disconnect a device from the computer.

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

4. Disconnect any telephone or telecommunication lines from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.

Protecting Against Electrostatic Discharge

Static electricity can harm delicate components inside your computer. To prevent static damage, discharge static electricity from your body before you touch any of your computer's electronic components, such as the microprocessor. You can do so by touching an unpainted metal surface on the computer chassis.

As you continue to work inside the computer, periodically touch an unpainted metal surface to remove any static charge your body may have accumulated.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- Do not remove components from their antistatic packing material until you are ready to install the component in your computer. Just before unwrapping the antistatic packaging, discharge static electricity from your body.
- When transporting an electrostatic sensitive component, first place it in an antistatic container or packaging.
- Handle all electrostatic sensitive components in a static-safe area. If possible, use antistatic floor pads and workbench pads.

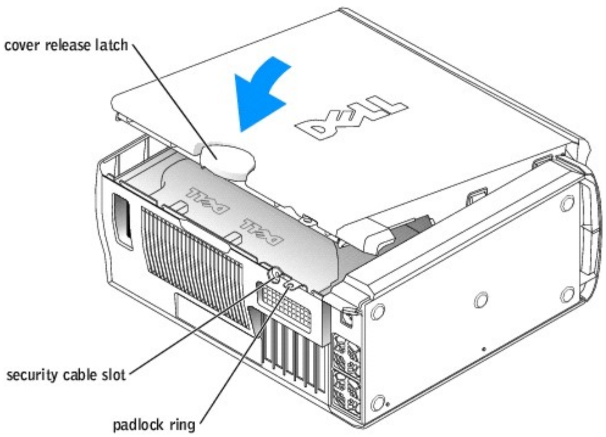
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Closing the Computer Cover

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1. Ensure that all cables are connected, and fold cables out of the way.
2. Ensure that no tools or extra parts are left inside the computer.
3. Close the computer cover:
   a. Pivot the cover down and into position.
   b. Press down on the cover to close it.
   c. Once the cover is closed, slide the cover release latch to the right until the latch clicks into place.



4. If you are using a padlock to secure your computer, install the padlock.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

5. Connect your computer and devices to electrical outlets, and turn them on.

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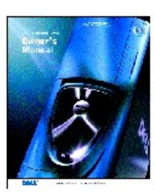
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Documentation

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- [Finding Information for Your Computer](#)
- [Printed Documentation](#)
- [Online Documentation](#)

Finding Information for Your Computer

What are you looking for?	Find It Here
• How to access tutorials and other how to information • How to get a copy of my invoice • How to extend my warranty • How to access Dell Support on my Windows desktop (U.S. only) • Additional documentation, tools, troubleshooting information, and links to online support resources	**Dell Solution Center**  On your Windows desktop
• Latest drivers for my computer • Answers to technical service and support questions • Online discussions with other users and technical support • Documentation for my computer	**Dell Support Website — support.dell.com** The Dell Support website provides several online tools, including: • Solutions — Troubleshooting hints and tips, articles from technicians, and online courses • Community Forum — Online discussion with other Dell customers • Upgrades — Upgrade information for components, such as memory, the hard drive, and the operating system • Customer Care — Contact information, order status, warranty, and repair information • Downloads — Drivers, patches, and software updates • Reference — Computer documentation, product specifications, and white papers
• How to set up my computer	**Setup Diagram** 
• Additional information about setting up my computer • How to troubleshoot and solve problems • How to remove and install parts • Technical specifications • How to contact Dell	**Owner's Manual** 
• Tips on using Windows • How to play CDs and DVDs • How to use standby mode and hibernate mode • How to change my display resolution	**Dell™ Dimension™ Help File** 1. Click the **Start** button and click **Help and Support**. 2. Click **User and system guides** and click **User's guides**. 3. Click **Dell™ Dimension™ Help**.

• How to clean my computer	
• How to use Windows • Documentation for my computer • Documentation for devices (such as a modem)	**Windows Help and Support Center** 1. Click the **Start** button and click **Help and Support**. 2. Type a word or phrase that describes your problem and click the arrow icon. 3. Click the topic that describes your problem. 4. Follow the instructions on the screen.
• A diagnostic program for my computer • Drivers for my computer • My computer documentation • My device documentation	**ResourceCD** Documentation and drivers are already installed on your computer when shipped from Dell. You can use the CD to reinstall drivers, run the Dell Diagnostics, or access your documentation.  Readme files may be included on your CD to provide last-minute updates about technical changes to your computer or advanced technical-reference material for experienced users or technicians.
• How to reinstall my operating system	**Operating System CD** Windows XP is already installed on your computer when shipped from Dell. You can use the CD to reinstall the operating system. After you reinstall your operating system using the Operating System Reinstallation CD, use the ResourceCD to reinstall drivers for the devices that came with your computer.  The product key for your operating system is located on your computer.
• Service Tag and Express Service Code • Microsoft® Windows® License Label	**Service Tag and Microsoft Windows Label**  These labels are located on your computer. • Use the Service Tag to identify your computer when you access Dell Support or when you contact Dell for technical assistance. • Enter the Express Service Code into the automated call-routing system when you contact Dell for technical assistance. Express Service Code service may not be available in some countries. • Use the number on the Windows License Label if you reinstall Windows on your computer.

Printed Documentation

NOTE: You must right-click the link for a portable document format (PDF) file and save the file to your hard drive. Attempting to open large PDF files through your browser causes your computer to freeze.

To save PDF files (files with an extension of **.pdf**) to your hard drive, right-click the document title, click **Save Target As** in Microsoft® Internet Explorer or **Save Link As** in Netscape Navigator, and specify a location on your hard drive.

Right-click only the following links:

Dell Dimension XPS Owner's Manual **(.pdf) (5.87 MB)** — Provides information on adding upgrades, performing basic troubleshooting procedures, and reinstalling drivers. It also provides technical specifications.

Setup diagram (**.pdf**) (**1.23 MB**) — Provides information on how to set up your computer.

Online Documentation

NOTE: PDF files require Adobe™ Acrobat Reader, which can be downloaded from the Adobe World Wide Web site at **www.adobe.com/acrobat/**. To view a PDF file, launch Acrobat Reader. Click **File→ Open** and select the PDF file.

The *Dell Dimension Help* file is already loaded on your hard drive when you receive your computer. To open the file:

1. Click the **Start** button, and then click **Help and Support**.
2. Click **User and system guides**, and then click **User's guides**.
3. Click **Dell Dimension Help**.

NOTE: *Dell Dimension Help* files (files with an extension of **.chm**) require Microsoft Internet Explorer 4.0 or later.

The *Dell Dimension Help* file allows you to search for information in multiple ways. You can quickly link to information on the following topics:

- Hardware and software features of your computer
- The Windows desktop, where you can change your wallpaper and screen saver, create shortcuts, and position icons
- Software access, installation, and removal
- Basic file management, such as finding, copying, deleting, and renaming files
- Tips on using your computer hardware

Downloading the Help File

1. Right-click the following link to the file: *Dell Dimension Help* (**.chm**) (**700 KB**).
2. Click **Save Target As** in Microsoft Internet Explorer or **Save Link As** in Netscape Navigator, and specify a location on your hard drive.

Viewing the Help File

1. Click the **Start** button on the Windows desktop, point to **All Programs→ Accessories**, and then click **Windows Explorer**.
2. Navigate to the directory in which you saved the *Dell Dimension Help* file.
3. Double-click the file (**DellHelp.chm**).

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Removing and Installing Parts

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Memory

You can increase your computer memory by installing memory modules on the system board. For information on the type of memory supported by your computer, see "Memory."

NOTE: DDR 333 memory operates at 320-MHz when used with an 800-MHz front-side bus processor.

DDR Memory Overview

DDR memory modules should be installed in *pairs of matched memory size*. This means that if you purchased your computer with 256 MB of memory installed and you want to add another 256 MB of memory, you must install it in the appropriate connector. If the DDR memory modules are not installed in matched pairs, the computer will continue to operate, but with a slight reduction in performance.

NOTE: Always install DDR memory modules in the order indicated on the system board.

The recommended memory configurations are:

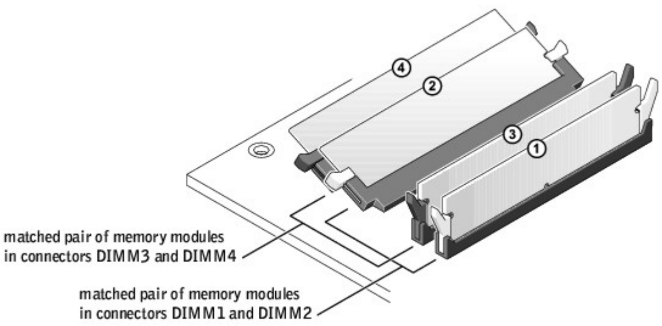
- A pair of matched memory modules installed in connectors DIMM1 and DIMM2

  or

- A pair of matched memory modules installed in connectors DIMM1 and DIMM2 and another matched pair installed in connectors DIMM3 and DIMM4

Additional memory recommendations include:

- Do not install ECC memory modules.
- If you install mixed pairs PC2700 (DDR 333-MHz) and PC3200 (DDR 400-MHz) of memory modules, they function at the slowest speed of the modules you install.
- Be sure to install a single memory module in DIMM 1 or the connector closest to the processor before you install modules in the other connectors.



NOTICE: If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell. You should install your original memory modules in pairs either in connectors DIMM1 and DIMM2 or connectors DIMM3 and DIMM4. If possible, *do not* pair an original memory module with a new memory module. Otherwise, your computer may not function at optimal performance.

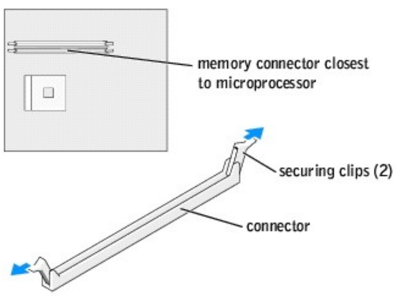
NOTE: Memory purchased from Dell is covered under your computer warranty.

Installing Memory

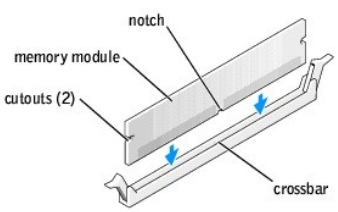
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Lay the computer on its side so that the system board is on the bottom of the inside of the computer.
4. If necessary, remove a memory module:
   a. Press out the securing clip at each end of the memory module connector.
   b. Grasp the module and pull up.

   If the module is difficult to remove, gently ease the module back and forth to remove it from the connector.
5. To insert a module, press out the securing clip at each end of the memory module connector.



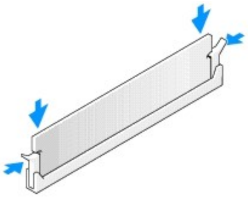
6. Align the notch on the bottom of the module with the crossbar in the connector.



NOTICE: To avoid breaking the memory module, do not press near the middle of the module.

7. Insert the module straight down into the connector, ensuring that it fits into the vertical guides at each end of the connector. Press firmly on the ends of the module until it snaps into place.

   If you insert the module correctly, the securing clips snap into the cutouts at each end of the module.



8. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9. Connect your computer and devices to electrical outlets, and then turn them on.
10. Click the **Start** button, right-click **My Computer**, and then click **Properties**.
11. Click the **General** tab.
12. To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

PCI Cards

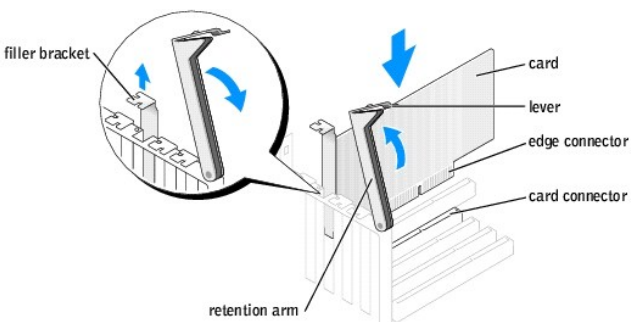
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Your Dell™ computer provides slots for up to four 32-bit, 33-MHz cards. For more information, see "Specifications."

NOTE: For optimum performance, install a PCI sound card only in PCI slot 3 or 4 and a modem card only in PCI slot 2, 3, or 4.

Installing a PCI Card

1. If you are replacing a card, remove the current driver for the card from the operating system.
2. Follow the instructions in "Before You Begin."
3. Open the computer cover.
4. Press the lever on the card retention arm and raise the retention arm.



5. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 7.
6. If you are replacing a card that is already installed in the computer, remove the card.

   If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.

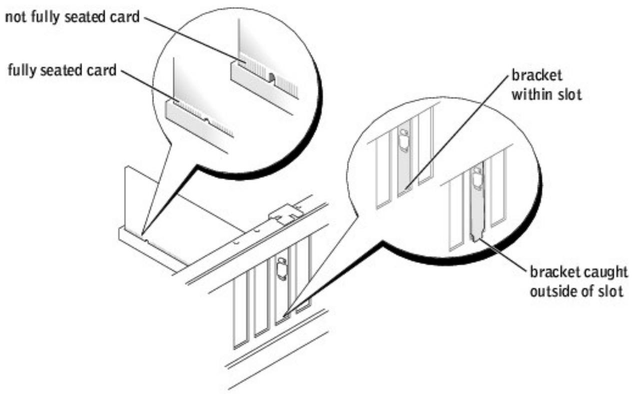
7. Prepare the card for installation.

   See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

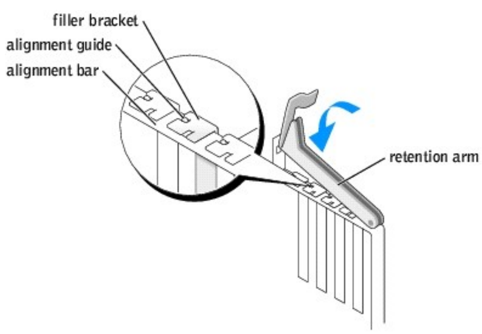
CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.

8. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

If the card is full-length, insert the end of the card into the card guide bracket as you lower the card toward its connector on the system board. Insert the card firmly into the card connector on the system board.



9. Before you lower the retention arm, ensure that:
   - The tops of all cards and filler brackets are flush with the alignment bar.
   - The notch in the top of the card or filler bracket fits around the alignment guide.
10. Press the retention arm into place, securing the card(s) in the computer.



NOTICE: Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.

11. Connect any cables that should be attached to the card.

See the documentation for the card for information about the card's cable connections.

12. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

13. Connect your computer and devices to electrical outlets, and then turn them on.
14. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Press the lever on the card retention arm and raise the retention arm.
4. If necessary, disconnect any cables connected to the card.
5. Grasp the card by its top corners, and ease it out of its connector.
6. If you are removing the card permanently, install a filler bracket in the empty card-slot opening.

   If you need a filler bracket, see "Contacting Dell" in your *Owner's Manual*.

NOTE: You must install filler brackets over empty card-slot openings to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

7. Lower the retention arm and press it into place, securing the card(s) in the computer.
8. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9. Connect your computer and devices to electrical outlets, and then turn them on.
10. Remove the card's driver from the operating system.

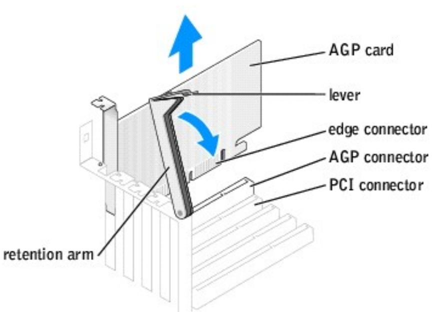
AGP Cards

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

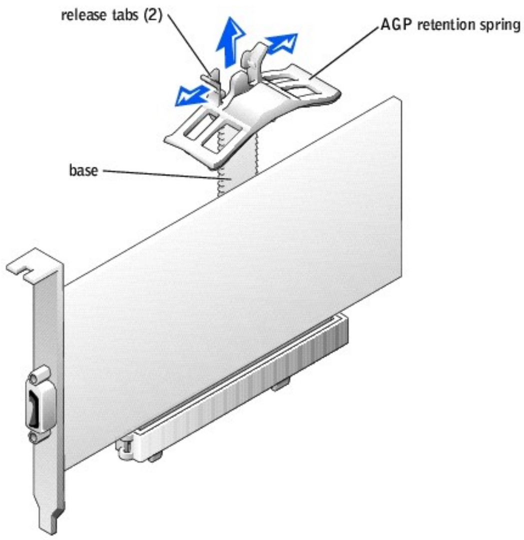
Your Dell™ computer provides a connector for an AGP card.

Removing an AGP Card

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Press the lever on the card retention arm and raise the retention arm.



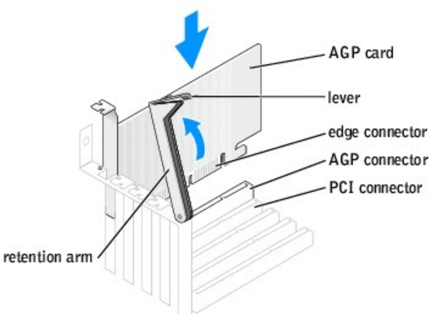
4. Press out on the release tabs and pull the AGP card guide up and off of the base.



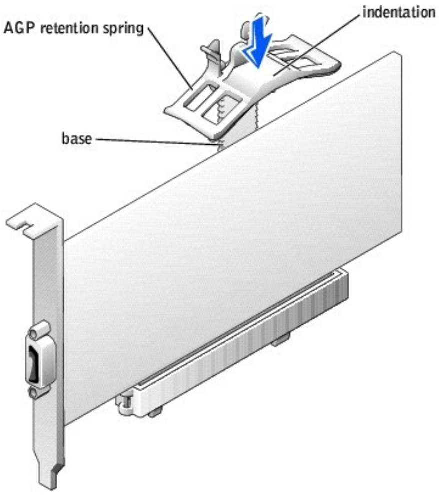
5. Pull the card up and out of the card clip.

Installing an AGP Card

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Press the lever on the card retention arm and raise the retention arm.



4. Gently press the card into the AGP connector until it clicks into place, ensuring that the tab fits into the notch on the front end of the card.
5. Align the AGP card guide with the base and press down on the indentation until the guide stops at the top of the AGP card.



6. Lower the retention arm and press it into place, securing the card(s) in the computer.
7. Close the computer cover.
8. Connect the monitor cable to the card's video connector.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9. Connect your computer and devices to electrical outlets, and turn them on.

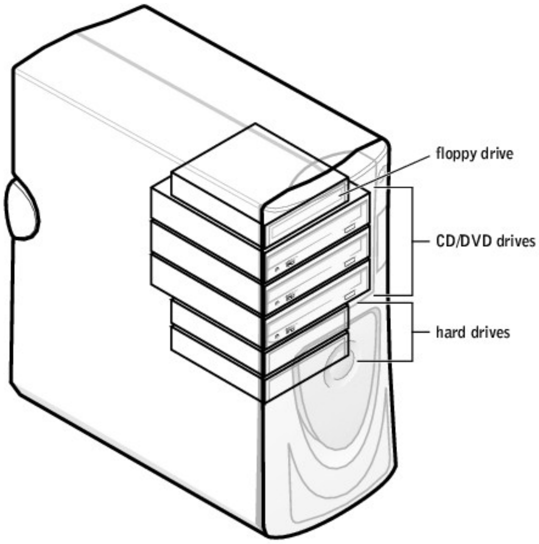
Drives

Overview

Your computer supports one floppy drive and a maximum combination of up to four of any of the following drives.

NOTE: Install only IDE hard drives *or* serial ATA hard drives in your computer. You cannot install both types of drives.

- Two hard drives (IDE, Serial ATA)
- Two CD or DVD drives

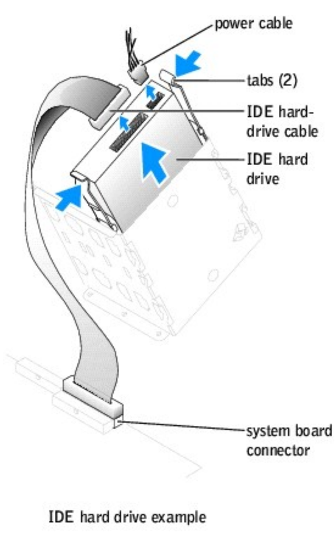


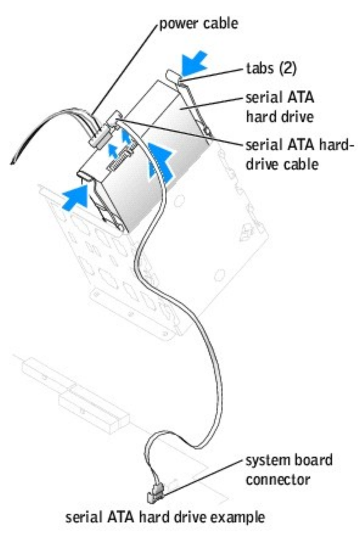
Hard Drive

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.**

Removing a Hard Drive

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Disconnect the power and hard-drive cables from the drive.





4. Press in on the tabs on each side of the drive and slide the drive up and out.

Installing a Hard Drive

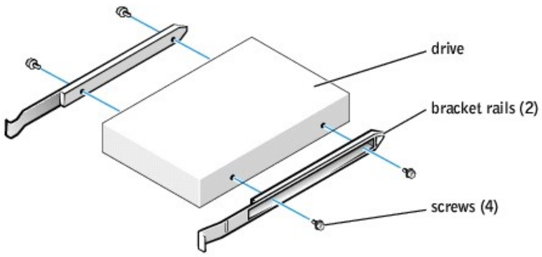
1. Unpack the replacement hard drive, and prepare it for installation.

2. Check the documentation for the drive to verify that it is configured for your computer.

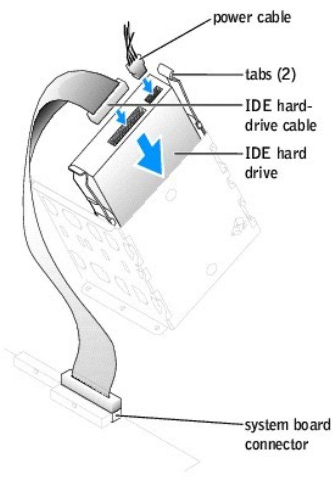
3. Follow the instructions in "[Before You Begin](#)."

4. [Open the computer cover](#).

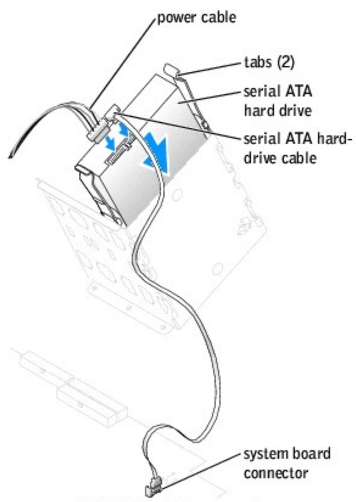
5. If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket rails to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



6. Install the hard drive into the computer by gently sliding the drive into place until you hear it click securely.



IDE hard drive example



serial ATA hard drive example

7. Connect the power and hard-drive cables to the drive.

8. Check all connectors to be certain that they are properly cabled and firmly seated.

9. [Close the computer cover](#).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

10. Connect your computer and devices to electrical outlets, and turn them on.

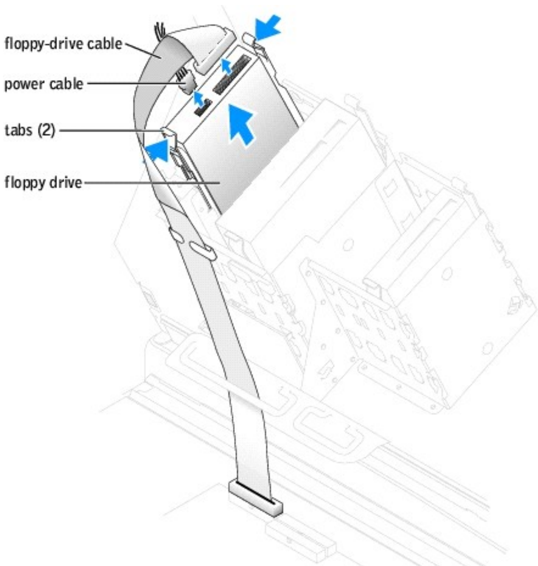
See the documentation that came with the drive for instructions on installing any software required for drive operation.

Floppy Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Removing a Floppy Drive

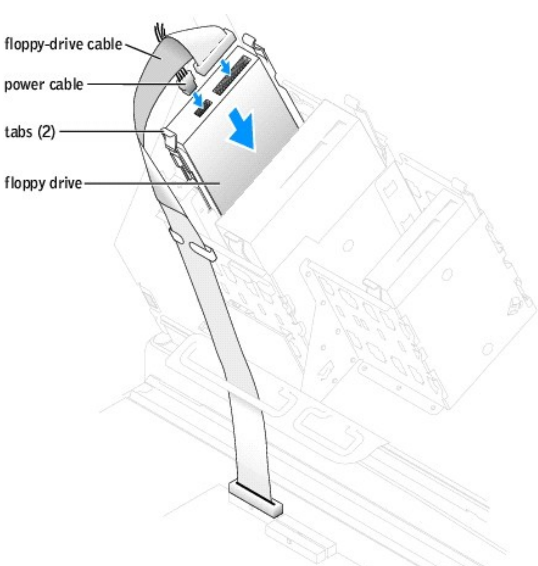
1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Disconnect the power and floppy-drive cables from the back of the floppy drive.



4. Press inward on the two tabs on the sides of the drive, slide the drive upward, and remove it from the floppy-drive bay.

Installing a Floppy Drive

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. If you are replacing a drive and the the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail). See the diagram.
4. Gently slide the drive into place until the tabs securely click into position.



5. Attach the power and floppy-drive cables to the floppy drive.

6. If you are installing a new floppy drive rather than replacing a drive, remove the front- panel inserts.

From inside the drive bay, gently press on each side of the insert until it pops out.

7. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
8. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9. Connect your computer and devices to electrical outlets, and turn them on.
10. After you turn on your computer, press <F2> when you are prompted to enter setup mode.
11. Highlight **Drive Configuration** and press <Enter>.
12. Use the left and right arrows to change **Diskette Drive A** from **Not Installed** to **3.5 inch, 1.44 MB**.
13. Press <Enter>.
14. Highlight **Integrated Devices (LegacySelect Options)** and press <Enter>.
15. Ensure that the **Diskette Interface** entry is set to **Auto**. If necessary, use the left and right arrows to set it to **Auto**.
16. Press <Enter>.
17. Press <Esc>.
18. Press <Enter> to **Save changes and Exit**.

The computer restarts.

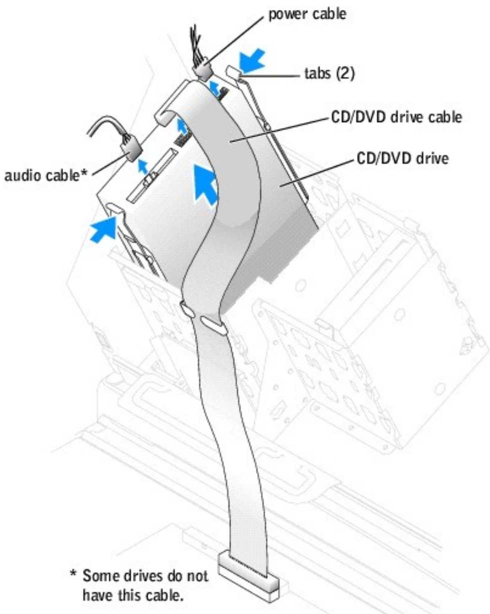
19. See the documentation that came with the drive for instructions on installing any software required for drive operation.

CD/DVD Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Removing a CD/DVD Drive

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Disconnect the power and CD/DVD drive cables from the back of the drive.



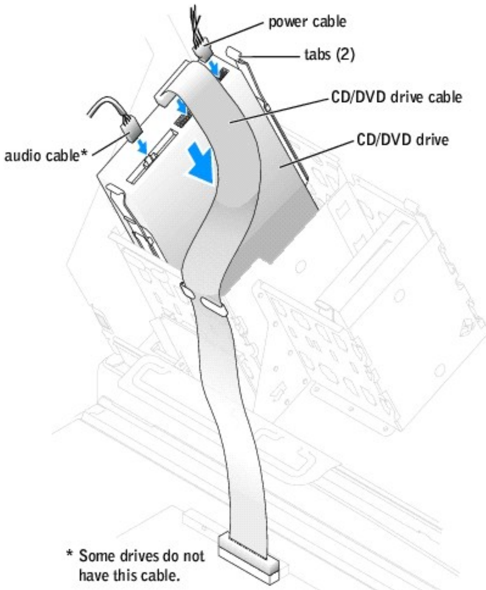
4. Press inward on the two tabs on the sides of the drive, and then slide the drive upward and remove it from the drive bay.

Installing a CD/DVD Drive

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. If you are installing a new drive, unpack the drive and prepare it for installation.

Check the documentation that accompanied the drive to verify that the drive is configured for your computer. If you are installing an IDE drive, configure the drive for the cable select setting.

4. Connect the new drive to the set of rails that are attached to the inside of the cover. If a set of rails is not attached inside the computer cover, see "Contacting Dell" in your *Owner's Manual*.
5. If you are installing a replacement drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail). See the diagram.
6. Gently slide the drive into place until the tabs securely click into position.



7. Connect the power and CD/DVD drive cables to the drive.

   If you are adding a drive that has an audio cable, connect the audio cable to the audio connector on the audio card.

8. If you are installing a new CD/DVD drive rather than replacing a drive, remove the front-panel inserts.

   From inside the drive bay, gently press on each side of the insert until it pops out.

9. If you are installing a drive that has its own controller card, install the controller card in an expansion slot.

   See the documentation that accompanied the drive and controller card to verify that the configuration is correct for your computer..

10. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
11. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

12. Connect your computer and devices to electrical outlets, and turn them on.

    See the documentation that came with the drive for instructions on installing any software required for drive operation.

Microprocessor Airflow Shroud

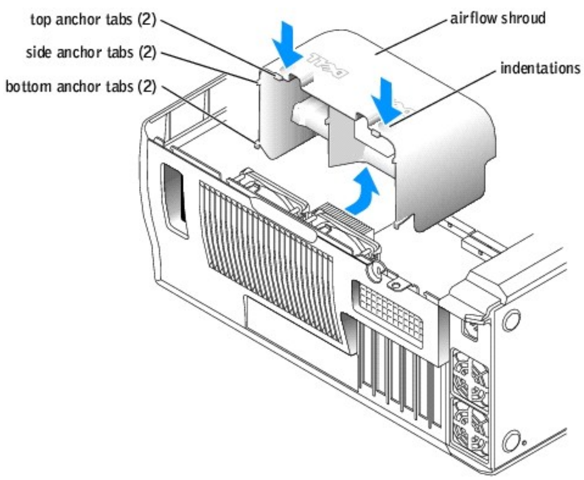
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Removing the Microprocessor Airflow Shroud

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Press down and back on the indentations at the top corners of the shroud.

   The top anchor tabs disengage from the anchor slots.

4. Lift the airflow shroud out of the chassis.



Installing the Microprocessor Airflow Shroud

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Insert the bottom anchor tabs into the anchor slots.
4. Align and insert the side anchor tabs into the anchor slots.
5. Press the indentations until the top anchor tabs on the shroud snap securely into place.
6. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

7. Connect your computer and devices to electrical outlets, and turn them on.

Microprocessor

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Installing the Microprocessor

NOTE: It is recommended that only a technically knowledgeable person perform this procedure.

CAUTION: The processor can get very hot during normal operation. Ensure that the processor has had sufficient time to cool before you touch it.

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Remove the microprocessor airflow shroud.

If you are replacing a microprocessor, see "Removing the Microprocessor."

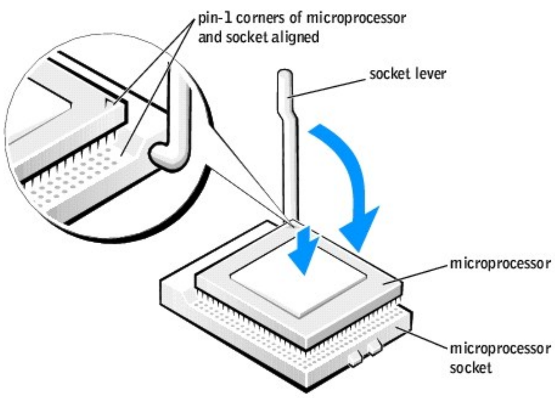
NOTICE: You must position the microprocessor correctly in the socket to avoid permanent damage to the microprocessor and the computer.

4. If the release lever is not extended to the release position, move it to that position.

5. Align pin-1 (the imprinted corner) of the microprocessor and pin-1 of the socket.

NOTICE: Microprocessor pins are delicate. To avoid damage, ensure that the microprocessor aligns properly with the socket, and do not use excessive force when you install the processor.

6. Carefully set the microprocessor in the socket and press it down lightly to seat it.
7. Rotate the release lever back toward the system board until it snaps into place, securing the microprocessor.



8. Remove the thermal grease protective cover and place the heat sink in the base.
9. Place one end of the heat sink under the tab on the retention module on the side opposite the lever. Lower the heat sink onto the microprocessor so that the heat sink fits securely under the tab on the other end of the retention module.
10. Replace the retention module clip.
11. If you installed a microprocessor replacement kit from Dell, return the original heat sink assembly and microprocessor to Dell in the same package in which your replacement kit was sent.
12. Replace the airflow shroud.
13. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

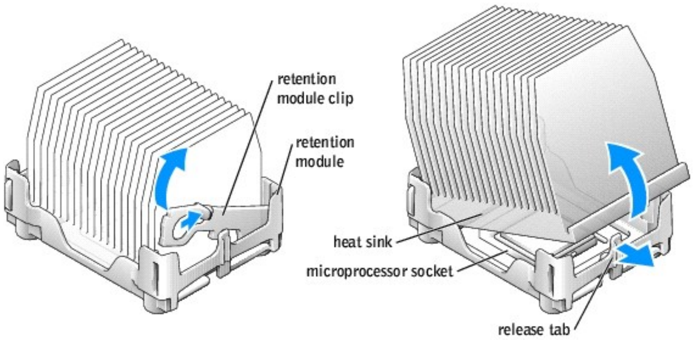
14. Connect your computer and devices to electrical outlets, and turn them on.

Removing the Microprocessor

NOTE: It is recommended that only a technically knowledgeable person perform this procedure.

CAUTION: The processor can get very hot during normal operation. Ensure that the processor has had sufficient time to cool before you touch it.

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Remove the microprocessor airflow shroud.
4. Remove the microprocessor heat sink:
   a. Remove the retention module clip by pressing in on the tab and lifting the retention module clip up.
   b. Pull the release lever out until the heat sink is released.
   c. Lift the heat sink away from the microprocessor.

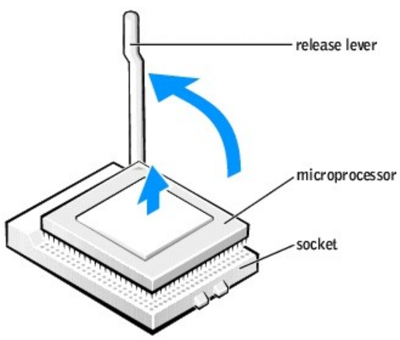


NOTICE: Lay the heat sink down with the thermal grease facing upward.

NOTICE: If you are installing a microprocessor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a microprocessor upgrade kit from Dell, reuse the original heat sink when you install your new microprocessor.

5. Pull the release lever straight up until the microprocessor is released.

NOTICE: Be careful not to bend any of the pins when you remove the microprocessor from the socket. Bending the pins can permanently damage the microprocessor.



6. Remove the microprocessor from the socket.

If you are replacing the microprocessor, leave the release lever extended in the release position so that the socket is ready for the new microprocessor and go to "Installing the Microprocessor."

7. Replace the airflow shroud.
8. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9. Connect your computer and devices to electrical outlets, and turn them on.

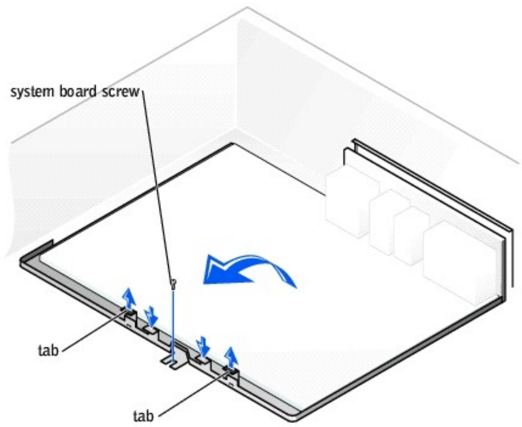
System Board

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Removing the System Board

NOTICE: The system board and metal tray are connected and are removed as one piece.

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Remove any components that restrict access to the system board.
4. Disconnect all cables from the system board.
5. Before you remove the existing system board assembly, visually compare the replacement system board to the existing system board to make sure that you have the correct part.
6. Remove the system board screw.



7. Pull up on the two tabs, slide the system board assembly toward the front of the computer, and then lift the assembly up and away.
8. Place the system board assembly that you just removed next to the replacement system board.

Replacing the System Board

1. Transfer components from the existing system board to the replacement system board:
   a. Remove the memory modules and install them on the replacement board.

CAUTION: The microprocessor package and heat-sink assembly can get hot. To avoid burns, ensure that the package and assembly have had sufficient time to cool before you touch them.

   b. Remove the heat-sink assembly and microprocessor from the existing system board and transfer them to the replacement system board.

2. Configure the settings of the replacement system board.
3. Set the jumpers on the replacement system board so they are identical to the ones on the existing board.

NOTE: Some components and connectors on the replacement system board may be in different locations than the corresponding connectors on the existing system board.

4. Orient the replacement board by aligning the notches on the bottom of the board with the tabs on the computer.
5. Slide the system board assembly toward the back of the computer until the assembly clicks into position.
6. Replace any components and cables that you removed from the system board.Reconnect all cables to their connectors at the back of the computer.
7. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

8. Connect your computer and devices to electrical outlets, and turn them on.

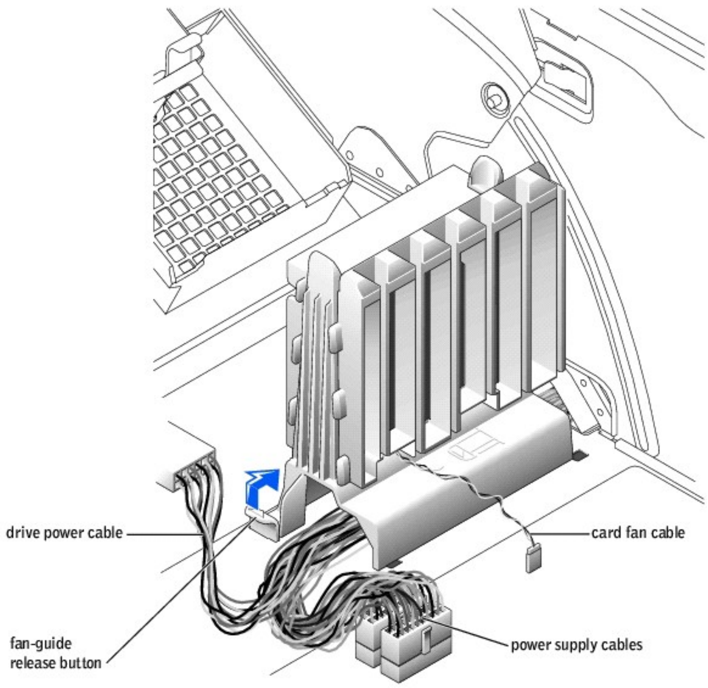
Power Supply

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

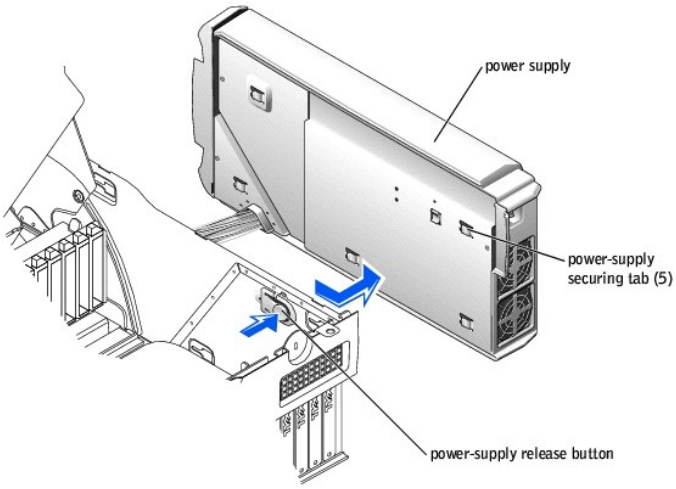
Removing the Power Supply

NOTICE: Before disconnecting a device from the computer, wait 10 to 20 seconds after disconnecting the computer from its electrical outlet. Before removing a component from the system board, verify that the standby power light on the system board has turned off. To locate this light, see "System Board Components."

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Remove the cards and the card fan.
4. Disconnect the power supply cables and the card fan cable.



5. Remove the card fan guide:
   a. Pull up on the fan-guide release button.
   b. Slide the card fan guide to the right.
   c. Lift the card fan guide out of the four securing slots in the computer.
6. While pressing the power-supply release button, slide the power supply toward the back of the computer.



7. Lift the power supply away from the computer.
8. Slide the power supply cables out of the computer (through the hole).

Replacing the Power Supply

1. Slide the power supply cables through the hole into the computer.
2. Insert the power-supply securing tabs into the power-supply securing slots on the computer, ensuring that each securing tab is connected to its slot on the computer.
3. Slide the power supply toward the front of the computer.
4. Install the card fan guide:
   a. Place the card fan guide into the four securing slots in the computer.
   b. Slide the card fan guide to the left until it locks into position.
5. Connect the power supply cables and the card fan cable.
6. Replace the card fan.
7. Install the cards.
8. Close the computer cover and restart the computer.

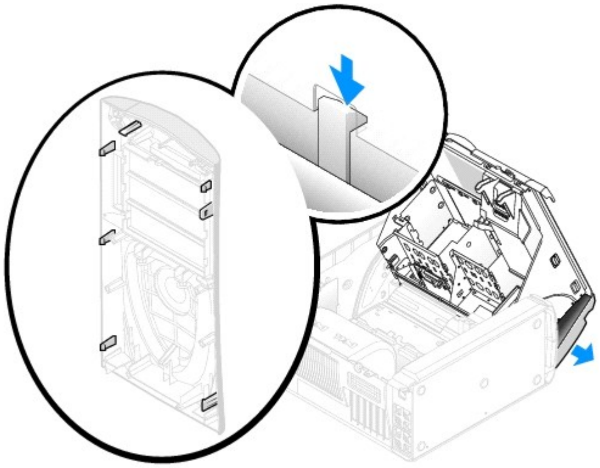
Front Panel

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Removing the Front Panel

1. Follow the instructions in "Before You Begin."
2. Open the computer cover.
3. Disconnect and remove all disk drives (see "Drives").
4. Release the front panel by pressing each of the front-panel release tabs.

There are seven release tabs.



5. Close the computer cover halfway and pull the front panel away from the computer.

Replacing the Front Panel

To replace the front panel, perform the removal procedure in reverse.

Battery

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.**

A coin-cell battery maintains computer configuration, date, and time information. The battery can last several years.

If you have to repeatedly reset time and date information after turning on the computer, replace the battery.

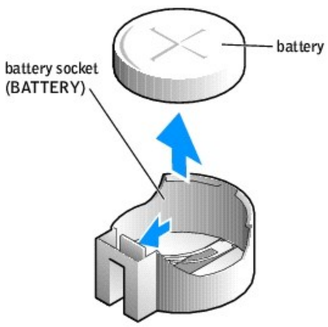
⚠ **CAUTION: A new battery can explode if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.**

To replace the battery:

1. Record all the screens in the system setup program so that you can restore the correct settings in step 9.
2. Follow the instructions in "Before You Begin."
3. Open the computer cover.
4. Locate the battery socket.

NOTICE: If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.

5. Remove the battery by carefully prying it out of its socket with your fingers or with a blunt, nonconducting object such as a plastic screwdriver.
6. Insert the new battery into the socket with the side labeled "+" facing up, and snap the battery into place.



7. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

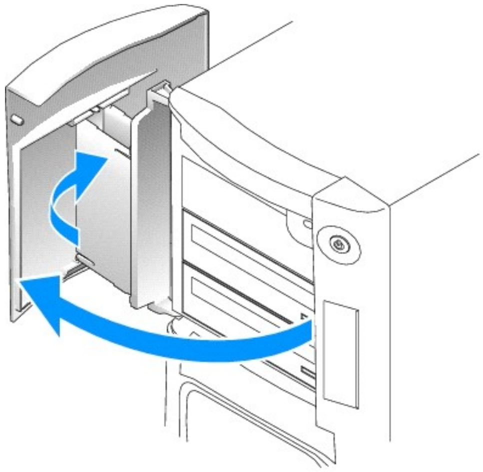
8. Connect your computer and devices to electrical outlets, and turn them on.
9. Enter the system setup program and restore the settings you recorded in step 1.
10. Properly dispose of the old battery. See "Battery Disposal" in the safety instructions in your *Owner's Manual*.

Drive Door

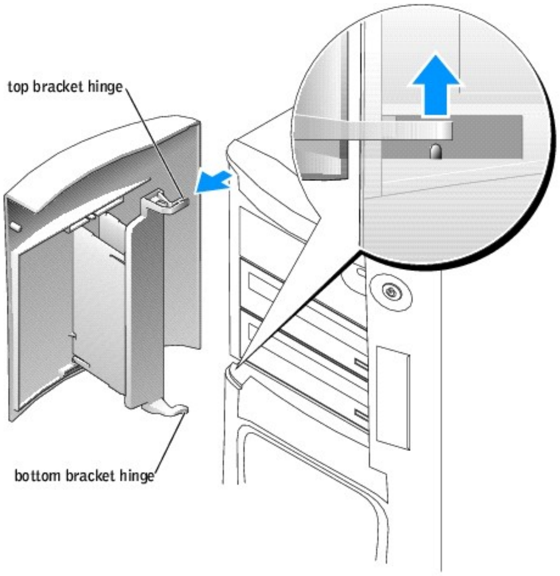
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

Removing the Drive Door

1. Open the drive door.



2. Unsnap the top bracket hinge and pull the top of the drive door outward, away from the computer.



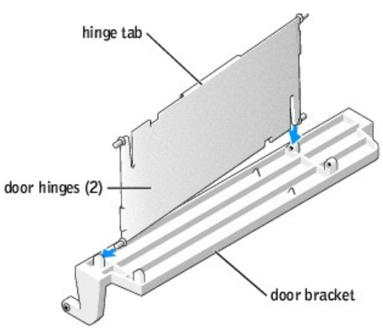
3. Lift the bottom bracket hinge away from the computer.

Replacing the Drive Door

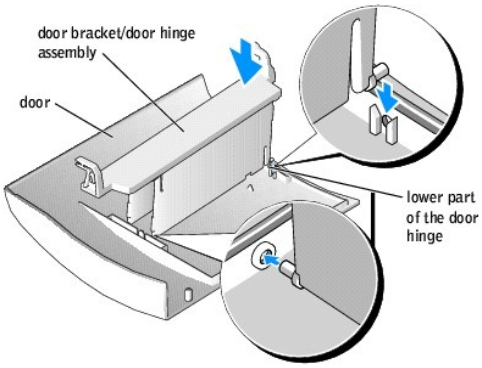
To prevent damage to your computer, the drive door is designed to "break away" from the computer if it is opened too far. If the drive door detaches from the computer without disassembling, perform the removal procedure in reverse.

If the drive door is open and it is opened too far, instead of breaking away from the computer in one piece, the drive door may disassemble into several smaller pieces. If the drive door disassembles:

1. If necessary, reattach the door hinges to the door bracket. Ensure that the hinge tabs are away from the door bracket.



2. Attach the door bracket/door hinge assembly to the door, starting with the lower part of each door hinge.



3. Attach the drive door to the computer, starting with the bottom bracket hinge.

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Opening the Computer Cover

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CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

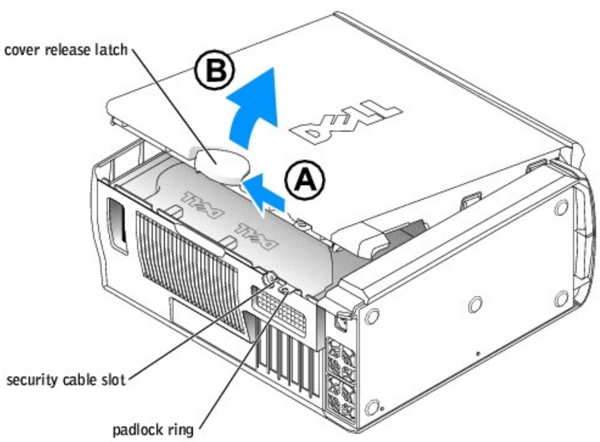
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

1. Follow the instructions in "Before You Begin."
2. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

NOTICE: Ensure that sufficient space exists to accommodate the open cover—at least 30 cm (1 ft) of desk top space.

NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.

3. Lay the computer on its side with the cover release latch on the top as shown in the following figure.
4. Open the computer cover:
   a. Slide the cover release latch toward the top of the computer.
   b. Raise the cover, and pivot it toward the front of the computer.



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Specifications

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Microprocessor	
Microprocessor type	Intel® Pentium® 4 that runs at 2.8 or 3.0, or 3.2 GHz
Level 1 (L1) cache	8 KB
Level 2 (L2) cache	512-KB

Memory	
Type	400- and 333-MHz DDR SDRAM
Memory connectors	four
Memory capacities	128-, 256-, or 512- non–ECC
Minimum memory	256 MB
Maximum memory	2 GB
BIOS address	F0000h

Computer Information	
Chip set	Intel 875P
DMA channels	eight
Interrupt levels	24
BIOS chip	4-Mb
NIC	integrated PCI network interface
System clock	533- or 800-MHz data rate

Video	
Type	AGP 8X

Expansion Bus	
Bus type	PCI and AGP
Bus speed	PCI: 33-MHz AGP: 133-MHz
AGP	
connector	one
connector size	172 pins
connector data width (maximum)	32 bits
bus protocols	8x/4x/2x modes at 1.5 V
PCI	
connector	four
connector size	120 pins
connector data width (maximum)	32 bits

Drives	
Externally accessible:	one 3.5-inch drive bay three 5.25-inch drive bays
Available devices	ATA-100 Ultra DMA hard drive, serial ATA drive, CD

	drive, DVD drive, RAID
Internally accessible:	three 3.5-inch drive bays

Connectors	
External connectors:	
Serial	two 9-pin connectors; 16550C-compatible
Parallel	25-hole connector (bidirectional)
Network adapter	10/100 Ethernet connector
PS/2 (keyboard and mouse)	6-pin mini-DIN
USB	two front-panel and six back-panel USB 2.0–compliant connectors
headphones	one front-panel connector
System board connectors:	
Primary IDE drive	40-pin connector
Secondary IDE drive	40-pin connector
Floppy drive	34-pin connector
Fans (3)	3-pin connector
I/O Panel	34-pin connector
Serial ATA (2)	7-pin connector
IEEE 1394	4-hole, unpowered connector

Controls and Lights	
Power control	push button
Power light	green light on power button—blinking green in sleep state; solid green for power-on state
Hard-drive access light	green
Link integrity light (on integrated network adapter)	green light for 10-Mb operation; orange light for 100-Mb operation
Activity light (on integrated network adapter)	yellow blinking light
Diagnostic lights	four lights on the back panel

Power	
DC power supply:	
Wattage	460 W
Heat dissipation	1000 BTU/hr
Voltage (see the safety instructions in your *Owner's Manual* for important voltage setting information)	fixed-voltage power supply—110 V at 50/60 Hz manual selection and auto-sensing power supplies—90 to 135 V at 50/60 Hz; 180 to 265 V at 50/60 Hz; 100 V at 50/60 Hz for Japanese computers
Backup battery	3-V CR2032 lithium coin cell

Physical	
Height	49.1 cm (19.3 inches)
Width	22.2 cm (8.7 inches)
Depth	48.8 cm (19.2 inches)
Weight	19 kg (42 lbs)

Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F) **NOTE:** At 35°C (95°F), the maximum operating altitude is 914 m (3000 ft).
Storage	–40° to 65°C (–40° to 149°F)
Relative humidity	20% to 80% (noncondensing)
Maximum vibration:	
Operating	0.25 G at 3 to 200 Hz at 0.5 octave/min
Storage	0.5 G at 3 to 200 Hz at 1 octave/min
Maximum shock:	

Operating	bottom half-sine pulse with a change in velocity of 20 inches/sec (50.8 cm/sec)
Storage	nonoperating (half-sine pulse) 105 G, 2 ms nonoperating (faired-square wave) 27 G with a velocity change of 508 cm/sec (200 inches/sec)
Altitude:	
Operating	−15.2 to 3048 m (−50 to 10,000 ft)
Storage	−15.2 to 10,668 m (−50 to 35,000 ft)

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System Setup Program

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Overview

The system setup program contains the standard settings for your computer.

NOTICE: Unless you are an expert computer user, do not change the settings for this program. Certain changes might make your computer work incorrectly.

You can use the system setup program as follows:

- To change the system configuration information after you add, change, or remove any hardware in your computer
- To set or change user-selectable options—for example, the user password

Dell recommends that you write down the system setup program screen information for future reference.

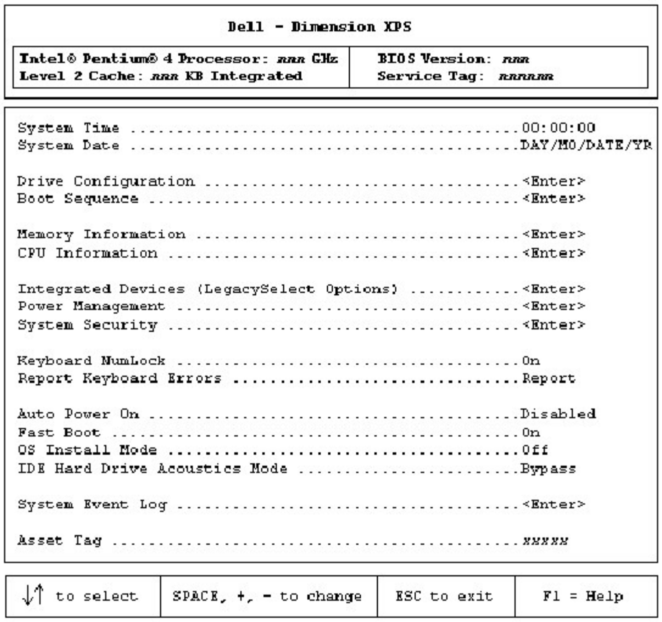
Entering the System Setup Program

Viewing Settings

1. Turn on (or restart) your computer.
2. When the blue DELL™ logo appears, press <F2> immediately.

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop. Then shut down your computer and try again.

See the following figure for an example of the main program screen.



System Setup Screens

The system setup program screens display the current configuration information for your computer. Information on the screen is divided into five areas:

- Title — The box at the top of all screens that lists the computer name.
- Computer data — Two boxes below the title box that display your computer processor, L2 cache, service tag, and the version number of the BIOS.
- Options — A scrollable box listing options that define the configuration of your computer, including installed hardware, power conservation, and security features.

  Fields to the right of the option titles contain settings or values. The fields that you can change appear bright on the screen. The fields that you cannot change (because they are set by the computer) appear less bright. When <Enter> appears to the right of an option title, press <Enter> to access a popup menu of additional options.

- Key functions — A line of boxes across the bottom of all screens that lists keys and their functions within system setup.
- Help — Press <F1> for information on the option that is selected (highlighted).

Option	Function
System Time	Displays the system time.
System Date	Displays the system date.
Drive Configuration	Displays drive configurations when <Enter> is pressed.
Boot Sequence	Displays boot sequence when <Enter> is pressed.
Memory Information	Displays amount of system memory when <Enter> is pressed.
CPU Information	Displays CPU information when <Enter> is pressed.
Integrated Devices (Legacy Select Options)	Displays integrated device options when <Enter> is pressed.
Power Management	Displays power management options when <Enter> is pressed.
System Security	Displays system security options when <Enter> is pressed.
Keyboard Numlock	Turns the **Keyboard NumLock** option on and off. The default is **On**.
Report Keyboard Errors	Displays keyboard errors when set to **Report**. The default is **Report**.
Auto Power On	Allows auto power-on. The default is **Disabled**.
Fast Boot	Turns the fast boot option on and off. The default is **On**.
OS Install Mode	Turns the **OS Install Mode** on and off. The default is **Off**.
IDE Hard Drive Acoustics Mode	Sets the performance speed of your hard drive. The default is **Bypass**.
System Event Log	Displays the system event log when <Enter> is pressed.
Asset Tag	Displays asset tag information.

The following table shows **Drive Configuration** option information.

Diskette Drive A:	Displays floppy drive details.
SATA Primary Drive:	Displays SATA primary hard drive (if installed). The default is **Off**.
SATA Secondary Drive:	Displays SATA secondary hard drive(if installed). The default is **Off**.
IDE Primary Drive 0:	Displays primary hard drive 0. The default is **Auto**.
IDE Primary Drive 1:	Displays primary hard drive 1 (if installed). The default is **Off**.
IDE Secondary Drive 0:	Displays secondary hard drive 0. The default is **Auto**.
IDE Secondary Drive 1:	Displays secondary hard drive device type. The default is **Off**.
IDE Drive UDMA:	Turns IDE Drive UDMA on and off. The default is **On**.

The following table shows **Memory Information** option information.

Option	**Function**
Installed System Memory	Displays the amount of installed system memory.
System Memory Speed	Displays the speed of your system memory.
System Memory Channel Mode	Displays the mode of your system memory.
AGP Aperture	Displays the amount of aperture memory. The default is **128 MB**.

The following table shows **CPU Information** option information.

Option	**Function**
Hyper-Threading	Enables Hyper-Threading. The default is **Disabled**.
CPU Speed	Sets the CPU speed. The default is **Normal**.
Bus Speed	Displays the bus speed.
Processor 0 ID	Displays processor ID.
Clock Speed	Displays clock speed.
Cache Size	Displays cache size.

The following table shows **Integrated Devices (Legacy Select Options)** option information.

Option	**Function**
Network Interface Controller	Turns the network interface controller off and on. The default is **On**.
Mouse Port	Turns the mouse port off and on. The default is **On**.
USB Emulation	Turns USB emulation off and on. The default is **On**.
USB Controller	Turns the USB controller off and on. The default is **On**.
Serial Port 1	Sets serial port options and turns the port off and on. The default is **Auto**.
Serial Port 2	Sets serial port options and turns the port off and on. The default is **Auto**.
Parallel Port	Displays parallel port settings when <Enter> is pressed. The default mode is **PS/2** and the I/O address default is **378h**.
Diskette Interface	Sets diskette interface options. The default is **Auto**.
PC Speaker	Turns the PC speaker off and on. The default is **On**.
Primary Video Controller	Sets the primary video controller. The default is **AGP**.

The following table shows **Power Management** option information.

Option	**Function**
Suspend Mode	Displays the suspend state used by the computer. The default is **S3**.
AC Power Recovery	Enables AC power recovery to occur. The default is **Off**.
Low Power Mode	Minimizes power use when the computer is off. The default is **Disabled**.

The following table shows **System Security** option information.

Option	Function
Password Status	Locks and unlocks the password option. The default is **Unlocked**.
System Password	Enables and disables the system password. The default is **Disabled**.
Setup Password	Enables and disables the setup password. The default is **Disabled**.
POST Hotkeys	Selects key that are active during POST. The default is **F2 and F12**.
PXE BIS Default Policy	Specifies how the computer will respond to boot integrity services authentication requests when no certificate has been installed. When set to **Deny** (the default), this request is rejected. The request is accepted when set to **Accept**.

Boot Sequence

This feature allows you to change the boot sequence for devices.

Changing Boot Sequence for the Current Boot

You can use this feature, for example, to tell the computer to boot from the CD drive so that you can run the Dell Diagnostics on the *Drivers and Utilities* CD, but you must set the computer to boot from the hard drive when the diagnostic tests are complete.

1. Turn on (or restart) your computer.
2. When the blue DELL logo appears, press <F2> immediately.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then shut down your computer and try again.

   The **Boot Device Menu** appears, listing all available boot devices. Each device has a number next to it.

3. At the bottom of the menu, enter the number of the device that is to be used for the current boot only.

Changing Boot Sequence for Future Boots

1. Enter the system setup program.
2. Use the arrow keys to highlight the **Boot Sequence** menu option and press <Enter> to access the pop-up menu.

NOTE: Write down your current boot sequence in case you want to restore it.

3. Press the up- and down-arrow keys to move through the list of devices.
4. Press the spacebar to enable or disable a device (enabled devices have a checkmark).

Press plus (+) or minus (−) to move a selected device up or down the list.

Clearing Forgotten Passwords

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual*.

If you forget your user or setup password, you cannot operate your computer or change settings in the system setup program until you clear the forgotten password(s).

NOTICE: This process erases both the system and setup passwords.

1. Shut down the computer.

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. Open the computer cover.
5. Locate jumper PASSWORD on the system board and remove the jumper plug.
6. Close the computer cover, plug your computer into an electrical outlet, and then turn on the computer.

   The existing password(s) will be erased.

7. Shut down the computer.

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

8. Turn off any attached devices and disconnect them from their electrical outlets.
9. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
10. Open the computer cover.
11. Reconnect the jumper plug to jumper PASSWORD on the system board.
12. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

13. Connect your computer and devices to their electrical outlets, and turn them on.

   Turning on your computer with the PASSWORD jumper installed reenables the password feature.

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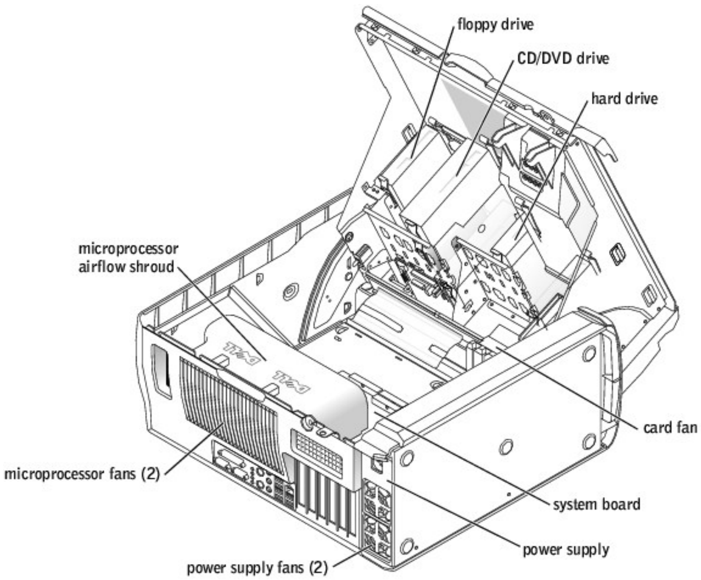
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Technical Overview

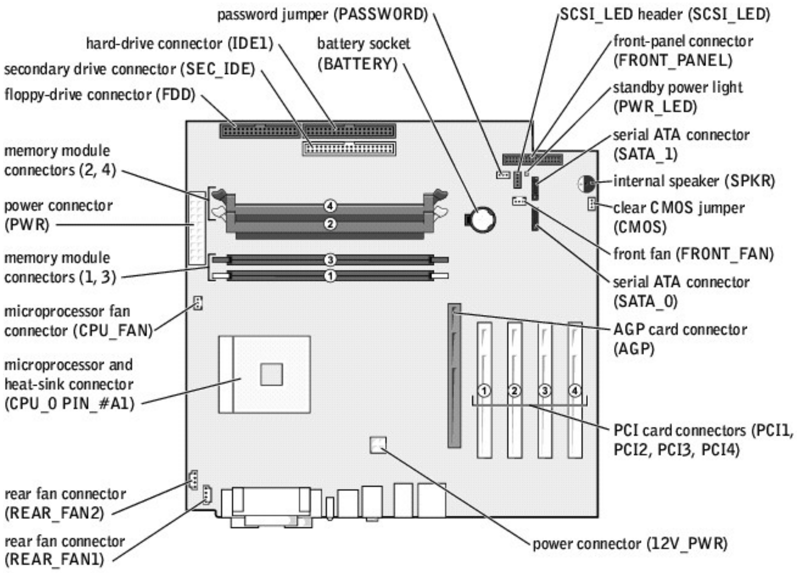
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Inside View of Your Computer

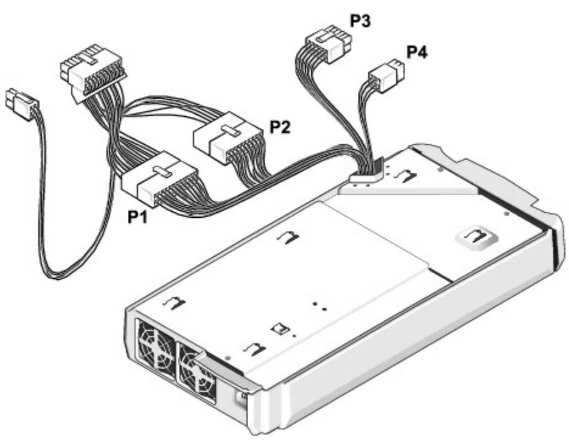
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.



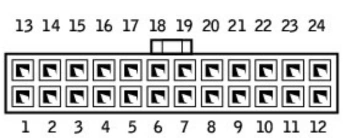
System Board Components



Power Supply DC Connector Pin Assignments



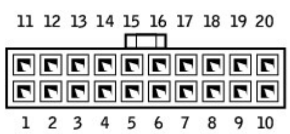
DC Power Connector P1



Pin Number	Signal name	18-AWG Wire
1	+5 VDC	Red
2	COM	Black

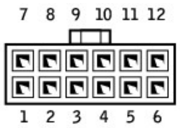
3	+5 VDC	Red
4	COM	Black
5	PWR GOOD	White
6	+5 VSB	Purple
7	+12 VA	Yellow
8	-12 V	Blue
9	COM	Black
10	COM	Black
11	+3.3 VDC	Blue and white
12	+3.3 VDC	Blue and white
13	PS-ON	Gray
14	COM	Black
15	COM	Black
16	COM	Black
17		N/C
18	+5 VDC	Red
19		N/C
20	+5 VDC	Red
21	TSFC (1)	Brown
22	+5 VDC	Red
23	+3.3 VDC	Blue and white
24	COM	Black

DC Power Connector P2



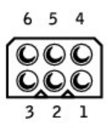
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Blue and white
2	+3.3 VDC	Blue and white
3	+3.3 VDC	Blue and white
4	+3.3 VDC	Blue and white
5	COM	Black
6	COM	Black
7		N/C
8	COM	Black
9	+12 VA	Yellow
10	COM	Black
11		N/C
12	+12 VB	Orange
13	+12 VB	Orange
14	+12 VB	Orange
15	COM	Black
16		N/C
17	COM	Black
18	COM	Black
19	TSFC (2)	Pink
20	+5 VDC	Red

DC Power Connector P3



Pin Number	Signal Name	18-AWG Wire
1	COM	Black
2	+12 VA	Yellow
3	+12 VA	Yellow
4	COM	Black
5	COM	Black
6	+5 VDC	Red
7	+5 VDC	Red
8		N/C
9	+12 VB	Orange
10	COM	Black
11	COM	Black
12	+5 VDC	Red

DC Power Connector P4



Pin Number	Signal Name	18-AWG Wire
1		N/C
2	COM	Black
3	COM	Black
4	+3.3 VDC	Orange
5	+5 VDC	Red
6	+12 VDC	Yellow

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NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

For a complete list of abbreviations and acronyms, see the *Dell™ Dimension™ Help* file.

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Turning Off Your Computer

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NOTICE: To avoid losing data, turn off your computer by performing a Microsoft® Windows® operating system shutdown, as described next, rather than by pressing the power button.

1. Save and close any open files, exit any open programs, click the **Start** button, and then click **Turn Off Computer**.
2. In the **Turn off computer** window, click **Turn off**.

The computer turns off after the shutdown process finishes.

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